

REMARKS

These amendments and remarks attend to all outstanding issues in the Office Action mailed November 15, 2006. Claims 1-53 are pending in the application, with claims 17-23, 26 and 45-49 considered withdrawn.

Claim 1 has been amended to recite “a resin formulation useful for forming pellets as precursors to shaped articles and/or molded snacks...wherein the grain protein in the pellets is substantially undenatured.” Support for these amendments may be found, for example, at p. 1, [0001]; p. 2, [0005] and [0009]; and Examples 1-3. Claims 2 and 3 have been amended in accordance with changes made to claim 1. Claim 54 has been cancelled. No new matter has been added to the claims by these amendments.

Claim Rejections – 35 U.S.C. § 103

The following is a quotation from the MPEP setting forth the three basic criteria that must be met to establish a *prima facie* case of obviousness:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2142, citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

3. Claims 1-5, 7-16, 24, 25, 27-33, 41, 42 and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over PCT Publication No. WO 00/13521 to Wang et al. (hereinafter “Wang”).

Wang discloses a chewable pet toy made from a protein-based thermoplastic composition containing plant and animal derived proteinaceous material and various additive and nutrient ingredients. The Examiner cites Example 7 of Wang which discloses the use of approximately 50% soy protein isolate (i.e., grain protein) and approximately 10% animal protein, and states that “[a]lthough it is not specified in this example that the animal-derived protein is hydrolyzed, it would have been obvious to one

having ordinary skill in the art to have hydrolyzed same...to contribute to or provide better processing flowability (see page 3)."

Amended claim 1 recites a resin formulation useful for forming pellets as precursors to shaped articles and/or molded snacks, comprising:

a shelf-stabilizing agent including a hydrolyzed protein moiety and selected from the group consisting of hydrolyzed protein and hydrolyzed protein derivatives,

the shelf stabilizing agent being present in an amount ranging from 0.5% to 25% by weight of the resin formulation; and
grain protein ranging from 20% to 80% by weight of the resin formulation,
wherein the grain protein in the pellets is substantially undenatured.

Wang does not disclose a formulation "wherein the grain protein in the pellets is substantially undenatured". Instead, Wang utilizes an extruder barrel "having the following temperature profile: zone 1/zone 2/zone 3/zone 4/zone 5/zone 6 = 95/100/105/110/105/98 °C." (p. 11, see also pp. 9 and 16). As stated in the present specification, "...it is important to maintain the temperature of the material within the extruder barrel below about 95°C to avoid heat denaturation of the matrix protein content of the formulation." Wang exceeds this temperature threshold, and the grain protein in Wang's formulation becomes heat denatured in the extruder barrel prior to pellet formation. Thus, Wang fails to disclose every element of Applicants' amended claim 1, and there is no suggestion or motivation to decrease the extruder barrel temperature in order to avoid the presence of denatured protein in the pellets.

Claims 2-5, 7-16, 24, 25, 27-33, 41 and 42 depend from claim 1, and benefit from arguments presented above. Further, these claims contain additional features that patentably distinguish over Wang. For example, claims 7-9 recite specific amounts of hydrolyzed protein suitable for use in the resin formulations. Wang does not disclose a particular amount or range of hydrolyzed protein. Claims 10-16 relate to hydrolyzed protein derivatives. Wang fails to disclose hydrolyzed protein derivatives. In particular,

claim 11 recites a hydrolyzed protein derivative comprising a reaction product of a protein hydrolyzate with at least one reagent selected from the group consisting of an anhydride, ethylene oxide, propylene oxide, fatty acid, reducing sugars, maltodextrin, oligosaccharide, and dextrin. Wang is silent as to reactions involving protein hydrolyzates. Claims 12 and 13 depend directly from claim 11, and benefit from like argument.

Withdraw of the 103 rejection over Wang is respectfully requested.

4. Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang and U.S. Patent No. 6,159,516 granted to Axelrod et al. (hereinafter “Axelrod”).

Axelrod discloses a process for forming starch into a molded article using melt processing techniques. The process combines starch and water to form a mixture, which is then heated in an extruder. The extrudate is injection molded and cooled to form a molded article. The disclosed process may be used to produce edible starch products for animals or chew toys for pets.

Axelrod is cited as disclosing “a molded chewable pet food which contains a liver protein material (col. 8, lines 55-62)”. The Examiner states that “[i]t would have been obvious...to have included liver protein in the product of Wang et al as a matter of preference depending on what protein is available, the cost of same, and the nutritional needs of the pet and to have further hydrolyzed same...” (Office Action of November 15, 2006, p. 3). However, Axelrod discloses liver powder as an attractant (i.e., aroma and flavor enhancer). It is well known that hydrolysis leads to bitterness and off-flavors; there is thus no motivation to hydrolyze the liver protein of Axelrod in the formulation of Wang, as suggested by the Examiner.

Withdraw of the 103 rejection over Wang and Axelrod is respectfully requested.

5. Claims 34-37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang and U.S. Patent Application Publication No. 2003/0219516 to Pater et al. (hereinafter “Pater”).

Pater discloses a pet chew based on starch that may be native or chemically modified, e.g., oxidized, carboxymethylated, hydroxyalkylated, acetylated, or (partially) hydrolyzed.

The Examiner cites Pater as disclosing calcium stearate (claim 12), and states that “it would have been...obvious to have included same for such art recognized use [as a mold release agent].” Yet Pater discloses calcium stearate as a lubricant or flow property enhancer, not a mold release agent, and the Examiner cites no authority for “such art recognized use”. We request supporting evidence for the use of Official Notice in the manner dictated by MPEP 2144.03(C).

Withdraw of the 103 rejection over Wang and Pater is respectfully requested.

6. Claims 34-36, 38-44 and 50-53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang and U.S. Patent No. 5,523,293 granted to Jane et al. (hereinafter “Jane”).

Jane discloses biodegradable, thermoplastic compositions made from the reaction product of soybean protein, a carbohydrate filler, a reducing agent, a plasticizer, water and optional additives. The compositions may be processed by extrusion and injection molded into solid articles suitable for consumption by mammals.

Claims 34-36, 38-44 and 50-53 depend from claim 1, and benefit from arguments presented above. Jane utilizes high temperature extrusion (98 – 125 °C; see Examples) which, as discussed above, leads to protein denaturation. Wang and Jane, alone or in combination, fail to disclose every element of Applicants’ independent claim 1, and all claims dependent thereon.

Withdraw of the 103 rejection over Wang and Jane is respectfully requested.

CONCLUSION

In view of the above Remarks, Applicants have addressed all issues raised in the Office Action dated November 15, 2006, and respectfully solicit a Notice of Allowance. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

Authorization to charge fees associated with a three-month extension of time is submitted herewith. If any additional fee is deemed necessary in connection with this Response, please charge Deposit Account No. 12-0600.

Respectfully submitted,

LATHROP & GAGE LC

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